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American Terrorism and Extremist Crime Data Sources and Selectivity Bias: An Investigation Focusing on Homicide Events Committed by Far-Right Extremists

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Abstract This paper examines the reliability of the methods used to capture homicide events committed by far-right extremists in a number of open source terrorism data sources. Although the number of research studies that use open source data to examine terrorism has grown dramatically in the last 10 years, there has yet to be a study that examines issues related to selectivity bias. After reviewing limitations of existing terrorism studies and the major sources of data on terrorism and violent extremist criminal activity, we compare the estimates of these homicide events from 10 sources used to create the United States Extremist Crime Database (ECDB). We document incidents that sources either incorrectly exclude or include based upon their inclusion criteria. We use a "catchment-re-catchment" analysis and find that the inclusion of additional sources result in decreasing numbers of target events not identified in previous sources and a steadily increasing number of events that were identified in any of the previous data sources. This finding indicates that collectively the sources are approaching capturing the universe of eligible events. Next, we assess the effects of procedural differences on these estimates. We find considerable variation in the number of events captured by sources. Sources include some events that are contrary to their inclusion criteria and exclude others that meet their criteria. Importantly, though, the attributes of victim, suspect, and incident

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characteristics are generally similar across data source. This finding supports the notion that scholars using open-source data are using data that is representative of the larger universe they are interested in. The implications for terrorism and open source research are discussed.

Introduction

Since the terrorist attacks of September 11, 2001, policy and scholarly interest in terrorism has grown and the number of studies published on this topic has increased. Silke (2008: 28) estimates that terrorism research published post 9/11 represents close to 90% of published studies and that a new terrorism book is published every 6 h. There has been an increase in the application of sophisticated statistical methods to study terrorism. Examples include Dugan et al. (2005) study that combines data from the Federal Aviation Administration, RAND, and the Global Terrorism Database (GTD) to examine the impact of counterterrorism interventions on hijacking using continuous-time survival analysis and logistic regression, and Smith and Damphousse's (1998) study that uses structural equation modeling to understand the sentencing of terrorists (see also, Johnson and Braithewaite 2009; Townsley et al. 2008). The other articles in this volume use other cutting-edge statistical techniques, such as latent class growth analysis and cross-classified multilevel models, to study terrorism issues. Although these contributions illustrate the importance of using rigorous designs and advanced statistical techniques it is equally important to investigate the nature and quality of data used to produce these sophisticated models. The application of any statistical method is only meaningful when researchers understand the strengths and weakness of their data source so that caveats can be provided and errors corrected.

This paper looks at what occurs early in the research process by examining the reliability of the methods used to create a database of terrorism incidents from open source data. Even though studies have investigated such issues in related disciplines (e.g., comparisons of data sources used to study "street" crime, hate crimes, Super-max correctional institutions and the number of extremist groups in a state (Biderman and Lynch 1991; Freilich and Pridemore 2006; Green et al. 2001; Lynch and Addington 2007; Naday et al. 2008), no study has compared terrorism databases to explore their error structure. We begin to fill this gap by focusing on one particular crime type–homicides committed by at least one far-right extremist–and comparing how well 10 terrorism data sets and/or sources do in capturing these events. As discussed more fully below, we limit our comparison to homicide events because they are more likely (compared to non-fatal attacks) to be captured by open sources. In other words, our comparison concentrates on a crime type that is likely to be picked up by open source data sets and chronologies.

We examine the procedures used in collecting information on fatal ideologically motivated attacks by far-right extremists in the United States for ten data sources including the definitions of terrorism and/or extremist violent criminal activity, the procedures used to identify events, and the application of each source's inclusion criteria to document incidents that were either incorrectly included or excluded based upon the sources own inclusion criteria. We assess the effects of these definitions and procedures on the number and types of ideologically motivated far-right homicide events captured by these sources as well as characteristics of these events.

We first outline the limitations of the existing terrorism knowledge base and discuss why researchers have turned to open sources to create event-level databases. Second, we describe the recently created United States Extremist Crime Database (ECDB), including why and how it was built. We review ten specific data sources used by the ECDB to identify homicides committed by far-right extremists in the United States between 1990 and 2008. Third, we explain why our comparison examines homicide incidents committed by far-right extremists. Fourth, after taking account of differences in definitions and each source's inclusion criteria, we compare the estimates of events from each source and document incidents that sources either incorrectly excluded or included based upon their criteria. We use a "catchment-re-catchment" analysis to investigate if the inclusion of additional sources result in decreasing numbers of target events not identified by previous sources and a steadily increasing number of events that were identified in any of the previous data sources. This would indicate that we have come closer to capturing the universe of eligible events.

Next, we assess the effects of procedural differences on these estimates. Using differences in the estimates we discuss potential biases that could result if only a single source was used to identify incidents. We conclude with a discussion of our findings that sets forth an error profile that identifies each step of the database construction process and possible errors that could result as well as strategies to limit these potential errors.

Weaknesses of Terrorism Research

The study of terrorism did not begin post 9/11. Scholars from different disciplines have examined the etiology of terrorism, the effectiveness of countermeasures, and the ideologies and structures of different groups for decades. Some studies have raised concerns about the quality of terrorism and extremist crime data (Chermak 2002; LaFree and Dugan 2004; Freilich 2003; Freilich and Pridemore 2006; Merari 1991; Ross 1993; Silke 2001). Most theoretical work and hypothesis testing occurs with questionable or insufficient data (Hamm 2005; Merari 1991; Ross 1993) and statistical analysis is rare (Silke 2008). Lum et al. (2006) systematic review of over 14,000 terrorism articles published between 1971 and 2003, found that only 3% were empirical (p. 8; see also Silke 2001). Victoroff's (2005: 34) review of psychological theories of terrorism, similarly concluded that there were more theories than empirical studies, and "even the small amount of psychological research is largely flawed, rarely having been based on scientific methods using normal and validated measures of psychological states, comparing direct examination of individuals with appropriate controls, and testing hypotheses with accepted statistical methods." Finally, Silke's (2008) examination of the impact of 9/11 on terrorism scholarship found that nearly 65% of published articles were literature reviews. The use of inferential statistics only increased slightly, 3.3% of articles prior to 9/11–10% post 9/11. Silke concludes (p. 38): "Despite the improvements since 9/11, terrorism articles still lag behind other applied areas, and concerns must remain over the validity and reliability of many of the conclusions being made in the field."

There is also the perennial difficulty of establishing a terrorism definition that is universally accepted by governments, law enforcement and scholars. A review of terrorism research indicates that scholars use over 100 different definitions of terrorism (Schmid 2004). Maxwell and Chermak (2007) conclude that "defining terrorism is the longest and most highly contentious debate among terrorism researchers and governments." Moreover, concerns have been raised about the difficulty of comparing terrorism definitions across place, and defining agency. In the United States, for example, the FBI, State Department

and the Department of Defense have different definitions of terrorism (Freilich et al. 2009a, b; Schmid 2004). These differences are not unreasonable because agencies may choose to define terrorism in a manner most appropriate to each agency's (unique) mission. We discuss this issue more in-depth when we outline the inclusion criteria employed by the sources we used to identify incidents.

It has been difficult for scholars to obtain data for quantitative analysis of terrorism. It is not possible to identify a sufficient number of terrorism events in a sample of the residential population. In the United States, the National Crime Victimization Survey (NCVS), for example, focuses on household residents and whether they were victims of serious "street crime," and was not designed to identify terrorism victims. Further, because terrorism events are rare even if some terrorism victims were identified the base rates would be low. Some studies have employed self-report data from known terrorists, but this research suffers from three weaknesses: (1) the samples are small (2) the interviews are conducted long after the individual participated in terrorism and thus suffer from retrospective construction, and (3) importantly, the projects lack comparison groups, limiting their ability to test causal relationships.

The usual alternative to offender (self report) and victimization surveys is to use archival data such as the Uniform Crime Reports (UCR) that accumulates the universe of crime events reported to authorities (LaFree and Dugan 2009). Obviously some terrorism events may not be reported to the police or recorded in these data systems because they fail to meet the inclusion criteria and are subsumed under another crime type. Moreover, the UCR is not collected on an incident basis and lacks detailed event information that would be needed for an incident-level analysis (LaFree and Dugan 2009). Importantly, the UCR was never designed to capture terrorism events (indeed, the 9/11 attacks were reported in separate section in the UCR report for this year). In addition, because the UCR Program does not collect information on crimes in federal jurisdictions, it might exclude attacks like the Foot Hood shooting that occur on military bases or other government properties.

Scholars have therefore turned to other sources of terrorism data such as open source documents due to their increased availability. Open source data refer to information that is open to public. Much of this information is in electronic form and is searchable via the Internet. But, these are not necessarily the defining attributes of open source data. Official records from courts and other entities, for example, may not be in electronic form but can be made searchable. The data covered by this term have some similarities with secondary analysis since much of this information was compiled for purposes other than research. Books, newspaper articles, official records and magazine articles are some common types of open source data. Since secondary data are not collected for research purposes, it often lacks systematic and uniform procedures to ensure the reliability of the data as well as documentation describing the decisions made in collecting and preparing the data. Newspapers, for example, do not act to ensure that their reporters use similar definitions writing stories on the same topic and that they report the same characteristics of people and events.

It is because open source data lacks the traditional procedures used in science to ensure reliability and representativeness, that social scientists suspect that it is susceptible to many forms of error and specifically selection bias. We suspect that open source data collection efforts that rely on newspaper stories may over represent spectacular cases of terrorism or those perpetrated by certain groups. The result is potentially biased coefficients and other misleading results. Some open sources of data may include a greater range of events and be systematic in the application of criteria of inclusion, but there has not been much research exploring the strengths and weaknesses of using open source data to conduct terrorism research. This study begins to address this gap.

Open Source Terrorism Databases

Scholars have used open sources to identify terrorism incidents and attributes of these events to systematically create event-level databases of terrorism. Technological advances, and especially the development of the Internet, provide the opportunity to access large numbers of source documents efficiently. Silke' (2001) found that 80% of the published work in this area is "based either solely or primary on data gathered from books, journals, the media or other published [open access] documents" (see also Merari 1991; Horgan 2008; Silke 2001). LaFree and Dugan (2004: 63), referring to open source data, conclude: "A research source that is rarely used in criminology research is a mainstay of research on terrorism."

Researchers have begun to combine these open sources into terrorist event databases that include increasingly more precise definitions, coding rules and documentation. LaFree and Dugan (2007) created the Global Terrorism Database (GTD) from the Pinkerton Global Intelligence Services (PGIS) data that identified and coded all terrorism incidents from wire services, U.S. State Department reports, other U.S. and foreign government reporting, U.S. and foreign newspapers, information from PGIS offices, and data furnished by PGIS clients. Similarly, many scholars have used the International Terrorism: Attributes of Terrorist Events (ITERATE) data set that uses information from media accounts to record attributes of transnational terrorist incidents (Endler and Sandler 2006). Other examples include Hewitt's (2003, 2005) analysis of domestic terrorism that combined information from multiple sources, such as the Trick chronology (1976) for events from 1965 to 1976, the Annual of Power and Conflict (1976–81), the FBI's annual reports, as well as information from watch groups and journalists. Ross's (1992) study of right-wing violence in Canada assembled a detailed chronology of events based upon material from the Toronto Reference Library, archival newspaper clippings from the intelligence branch of a police agency, files of three private organizations, published chronologies of violent political behavior in Canada, and newspaper clippings from major magazines.

Other researchers have used open sources to create terrorist suspect-level databases. Handler (1990; see also Smith 1994) collected data from newspaper clippings of nearly 400 known terrorists from the 1960s and 1970s and concluded that the demographic profiles of Right and Left terrorists are significantly different. Leiken and Brooke (2006) collected media reports, court and government documents and reports from non-government sources to develop a database that included biographical data on 373 jihadi terrorists. Sageman (2004) used publicly available documents for a network analysis to study 172 persons who joined the global Salafi jihad, and Bakker (2006) replicated this study and approach with 250 jihadists in Europe.

The use of open source data has also become an important source of information for the law enforcement community (see e.g.,Silber and Bhatt 2006). Freilich et al. (2009a, b) study that surveyed representatives responsible for homeland security investigations within state police agencies asked respondents to rank the importance of various sources of terrorism information, such as open (e.g., Books & journals; Internet; media) and non-open sources (e.g., Informants; Joint Terrorism Task Forces). They found the most frequently used source of terrorism information for state police agencies was the Internet (respondents used electronic search engines). Other open sources that were identified as being particularly helpful were the media and radical publications.

In sum, scholars have responded innovatively to overcome some of the weaknesses of traditional sources of data on crime for the study of terrorism by constructing databases of materials collected from open sources. Many published studies use these sources and thus

any discovered limitations might undermine the robustness of their findings. Although this growth has helped advance the field, there is little research that assesses the error structure of such databases. This is an oversight that we attempt to remedy in this article by examining how well a number of terrorism sources do in capturing homicides committed by far-right extremists in the United States.

Setting Forth a Framework for Describing Databases' Sources of Error

Before we describe the error structure for terrorism databases we must develop a framework for describing sources of error. In sample surveys, for example, we have come to distinguish sampling error from measurement or non-sampling error. The former category has been divided further into error stemming from coverage as opposed to sample size. Measurement errors are distinguished by stages in the data collection process, e.g. response errors, coding error, etc., and the same must be done for collecting data from open sources.

There are several steps involved in putting together an open source database that can serve as a rudimentary framework for distinguishing sources of error. First, open sources must be identified and mined to uncover potential incidents, or groups, or terrorists, or countermeasures (or whatever the focus of the research initiative). These efforts attempt to identify cases that are consistent with a specific set of inclusion criteria. The identification of events will be affected by the sources searched, the search engines used, the key words used to search and the manner in which the search terms are entered. Once a listing of potentially appropriate incidents has been identified, the second step is to correctly apply the source's inclusion criteria to ensure that events that meet the criteria are included, while events that fail to meet the criteria are excluded. The third step is to gather materials that provide additional information on the event that can be used to confirm that this is a terrorist event and to describe the event more fully. This search will also be affected by the amount of information one has on the event from the initial identification step, as well as many of the same factors that influence the initial search. These materials can be examined electronically or with human coders to collect variable-related information. The final step (prior to analysis) is to arrange these materials so that it is coded consistently and are useful for analysis.

We examine the bias that can result from the reliance on specific sources when constructing an event-level database using open source material. We do this by examining the process by which the Extremist Crime Database (ECDB) was constructed. In constructing this database, we used a number of sources of open source data to identify the universe of right wing homicide events.

Again, this study only includes homicide attacks committed by far-right extremists in the United States and ignores non-fatal events and acts that occur outside the United States. We limit the analysis in this way for two reasons. First, and importantly, homicide attacks in the United States are more likely to be covered by media outlets and open sources than other types of attacks (Chermak and Gruenewald 2006). We seldom see a headline, for example, that trumpets a "Small Earthquake in Chile, Not Many Dead." Further, academics and reporters in the U.S. are greatly interested in far-right extremists, like anti-government Patriots or racist white supremacists, and homicides committed by them are likely to be picked up by the media (see e.g., Aho 1990; Chermak 2002; Dobratz and Shanks-Meile 1997; Dyer 1997; Coates 1995; Freilich 2003; Freilich et al. 1999; Hamm 1993, 1997, 2002). Similarly, fatal events in the United States are more likely to be picked

up by open sources than incidents occurring in more remote locations (e.g., Mongolia) or dictatorial countries (e.g., North Korea) that lack a free press.

This investigation thus focuses on events that are likely to be included in the listings we examine. In other words, open source terrorism sources may miss more of the larger universe of terrorism events eligible for inclusion than what we examine here. Thus, any biases we uncover, arguably, could be more pronounced in the larger universe (that includes non-American and non fatal attacks) of terrorism events in these sources. Second, as discussed below, the far-right homicide data in the ECDB has been systematically reviewed twice and is the most reliable data in the ECDB.

We assess each source's contribution to identifying the ECDB universe of right wing homicide incidents. Following the logic of "catchment-re-catchment" sampling we assume that once we take account of definitional and scope differences, all the sources we review should tap the same universe of events. We also compare several attributes of victims, suspects, and incidents found in each individual data source to the pooled data. Based upon these results we make specific recommendations about strategies that could be used to mitigate the impact of any bias uncovered.

The next section provides a description of the ECDB project.

The Extremist Crime Database (ECDB)

The United States Extremist Crime Database (ECDB) was created in 2006 and it has been supported by the Department of Homeland Security (DHS) both directly and through the National Consortium for the Study of Terrorism and Responses to Terrorism (START) and from other sources (Freilich and Chermak 2009a, b, 2011). There were several justifications for building the database. First, the domestic far-right poses a significant threat to public safety (Freilich et al. 2009a, b). Domestic terrorism attacks generally outnumber international ones 7–1 in the United States and the far-right is especially dangerous (LaFree et al. 2006; see also Hewitt 2003, 2005). Second, the criminal activities of the far-right are a neglected research topic. Most terrorism research focuses on international terrorism. Third, studies on the domestic far-right's crimes usually rely on anecdotal or case study data. The few empirical works restrict their examinations to "terrorist" acts prosecuted on the federal level. For example, a literature review of over 300 studies examining far-right extremism concludes that less than a third used empirical data to produce findings (Gruenewald et al. 2009; see also Coates 1995; Langer 2003; Neiwert 1999).

The ECDB includes data on the suspects, victims and targets, event, and group characteristics of violent crimes committed by supporters of the domestic far-right from 1990–2008.[1] The database includes both ideological crimes (terrorist *and* non-terrorist acts) *and* routine/non-ideological violent crimes. Including non-ideological violent acts regardless of jurisdiction (federal, state and non-tried cases are all included) is significant because prior research has only focused on far-right criminal activity on the federal level, and/or limited themselves to crimes that fall under a particular definition of terrorism (Hewitt 2003, 2005; Smith 1994), or only analyzed the far-right's involvement in specific crimes.

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[1] The ECDB has received funding to expand its focus to include far-left and Al Qaeda inspired violent criminal activities and financial crimes by far-rightists and Al Qaeda inspired offenders. Since the focus of the analysis is on the far-right homicides, these data will not be discussed.

Identifying Far-Right Homicides for Inclusion in the ECDB

For an incident to be included in the ECDB two criteria must be satisfied. First, *behaviorally* a violent act (for this study a homicide) must have been committed inside the United States between 1990 and 2008. Second, *attitudinally* at the time of the incident at least one of the suspects who committed this act must have subscribed to a far-right belief system.[2] The incident is included in the database only when both criteria are satisfied. The development of the ECDB occurred in multiple stages but our concern here is the identification of far-right homicides through various sources. The goal is to understand what each individual source added to the database and whether each source had a consistently increasing number of events that were identified in any of the previous data sources. This would indicate that we have come closer to capturing the universe of eligible events.

Our attempt to systematically identify every far-right homicide that was listed in an open source involved reviewing each of our sources twice. First, as we began building the ECDB (2006–2008) we reviewed (1) existing terrorism databases such the American Terrorist Study (ATS), and the GTD; (2) official sources such as the FBI's *Terrorism in the United States* annual reports; (3) scholarly and journalistic accounts; (4) materials produced by watch-groups such as the Anti-Defamation League (ADL) and the Southern Poverty Law Center (SPLC), and (5) we also conducted media searches to uncover cases (see below). Second, in the summer of 2010 we reviewed each source a second time to validate each included incident and to double-check that we did not miss any incident that should have been included.

Comparing Data Sources of Far-Right Homicides

The focus of our analysis is comparing the homicides captured from 10 of the sources[3] used by the ECDB to identify homicides committed by far-rightists in the United States between 1990 and 2008.[4] These 10 sources include three noted scholarly databases or academic listings (Global Terrorism Database; American Terrorism Study; Hewitt's chronology), two law enforcement and official sources (F.B.I.; the State and Local Anti-Terrorism Training listings), two major watch-group organizations (Anti-Defamation League; Southern Poverty Law Center), and systematic media searches through lexis-nexis web-engine; the Ross Institute Internet Archives for the Study of Destructive Cults,

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[2] This study operationalizes the far-right as individuals or groups that subscribe to aspects of the following ideals: They are fiercely nationalistic (as opposed to universal and international in orientation), anti-global, suspicious of centralized federal authority, reverent of individual liberty (especially their right to own guns, be free of taxes), believe in conspiracy theories that involve a grave threat to national sovereignty and/or personal liberty and a belief that one's personal and/or national "way of life" is under attack and is either already lost or that the threat is imminent (sometimes such beliefs are amorphous and vague, but for some the threat is from a specific ethnic, racial, or religious group), and a belief in the need to be prepared for an attack either by participating in or supporting the need for paramilitary preparations and training or survivalism. Importantly, the mainstream conservative movement and the mainstream Christian right are not included.

[3] We attempted to review an 11th source, the Bureau of Justice Assistance (BJA) and Department of Defense (DOD) funded Institute for the Study of Violent Groups (ISVG) that tracks crimes committed by political extremists since 2002. Our requests for a listing of far-right homicides committed in the U.S. went unanswered.

[4] We excluded the National Counterterrorism Center's Worldwide Incidents Tracking System (WITS) database that includes terrorist acts committed since 2005 in our analysis because it only contained one far-right related homicide event. This homicide was included in the other sources we examined.

Controversial Groups and Movements (identified as the Rick Ross's Internet archive below), as well as incidents uncovered by ECDB coders as they reviewed information generated from the previous 9 sources.

Table 1 lists each source, its published criteria and describes how we searched it. Our review of each source consisted of reading through its listings or narratives of attacks committed by political extremists in the U.S to flag all incidents that satisfied our inclusion criteria.

A review of these sources found that they diverged by design on five-inclusion criteria that included (1) the time frame of included cases, (2) whether acts were restricted to ideologically (or politically) motivated homicides; i.e., whether routine/non-ideologically motivated acts were also included,[5] (3) whether acts were restricted to crimes that were not "hate-crimes," i.e., whether bias-motivated crimes were included[6]; (4) whether the homicide must have been committed by a group, i.e., whether homicides committed by lone actors were also included,[7] and (5) whether only incidents investigated federally were included, i.e., whether state-level cases were also included.[8] It is important to review these different criteria because they result in different "universes." Thus, adjustments must be made when comparisons are made across these sources.

Table 2 presents the 10 sources' decisions on the criteria just outlined.

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[5] Six of the sources we used only included acts committed to further a "political" or "ideological" objective. These sources assume that ideologically motivated crimes are committed for a higher purpose and are different than routine crimes committed to further personal interests. The ADL, SPLC, the media and our coders focused however, on crimes committed by extremist *suspects* as opposed to events. Thus, these sources are interested in all homicides committed by far-rightists (both ideological and non-ideological). Our study assumes that the ECDB categorization of a homicide event as either ideologically motivated or non-ideologically motivated is accurate. In this sense, we are privileging the ECDB. For example, if the ECDB categorizes homicide X as ideologically motivated, while the FBI or GTD categorize it as non-ideological we code that event as ideologically motivated. While we appreciate critiques that question why the ECDB is treated as the ground truth, we make this determination for a few reasons. Again, the ECDB's ongoing data collection efforts focus almost exclusively on homicides committed by far-rightists and other extremists in the United States. Further, the ECDB systematically searched through a series of open sources to identify these events twice. Conversely, most other data collection efforts focus on a much larger geographic universe and have a much larger N.

[6] The FBI and databases like the GTD argue that while hate/bias-motivated crimes are related to terrorism, they are a separate phenomenon. Hate crimes are counted separately (e.g., the FBI's UCR hate crimes report is distinct from the government's annual terrorism reports). Non-hate crime ideologically motivated acts are thought to implicate broader political objectives that qualify as terrorist, while hate crimes do not qualify. Other sources disagree and sometimes conclude that ideologically motivated acts- anti- government or anti-minority- qualify and should be labeled terrorist. Here too we assume that the ECDB categorization of a homicide event as either a bias-motivated crime or not is accurate.

[7] The FBI and sources that rely upon its definition (i.e., the ATS and Hewitt) conclude that acts committed by lone wolves usually do not qualify as terrorists. Groups like the IRA or Al Qaeda, 1998- 2001, are organized entities that engage in ongoing criminal activities designed to harm American interests. Conversely, lone actors usually lack the logistical support and infrastructure to conduct repeated attacks and to remain a longstanding threat to government interests. Thus, lone wolves do not implicate the same threat level and do not qualify as terrorist. Other sources conclude that ideologically motivated acts, regardless of the organizational level of the suspects who commit it, should be labeled terrorist.

[8] The F.B.I. is charged with investigating domestic terrorism incidents and these incidents are subsequently prosecuted on the federal-level. Some sources again conclude that the jurisdiction of the prosecution is irrelevant and that what matters is whether the act is ideologically motivated.

Table 1 Sources used to identify ECDB's far-right homicide cases, 1990–2008

Source	Criteria	How we searched the source
FBI "Terrorism in the United States"	"The unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives," (FBI, 1997). The FBI considers events either domestic (group or individual with its base of operation in the US) or international (occur outside the US). Also, terrorist related activity is divided into incidents, suspected activities, and preventions.	We read each annual report published by the FBI from 1990 to 2000. We also reviewed FBI reports that covered the years 2001–2005.
Christopher Hewitt's chronology (2005)	Claims to use FBI's definition (Hewitt 2005: vii)- "The unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives" Combined information from multiple sources, such as the Trick chronology (1976) for events from the 1965–76 period, the Annual of Power and Conflict (1976–81), the FBI's annual reports, as well as information from watch groups and journalists.	Hewitt's chronology is in narrative form and describes each incident in three to four lines. We read the entire narrative for the 1990–2004 time-frame.
Global Terrorism Database (GTD)	For an incident to be included in the GTD *all of the following (3) attributes must be present:* Incident must be intentional—result of conscious calculation on the part of the perpetrator Incident must entail some level of violence There must be sub-national perpetrators (GTD limits itself to non-state terrorism) *IN ADDITION at least 2 of the following criteria must be present before an incident can be included* The act must be aimed at attaining a political, economic, religious or social goal. In terms of economic goals, the exclusive pursuit of profit does not satisfy this criterion There must be evidence of an intention to coerce intimidate or convey some other message to a larger audience (or audiences) than the immediate victims The act must be outside the context of legitimate warfare activities	In late 2008 and summer 2010 (June–August) we reviewed the GTD and filtered the data to identify incidents in the United States that satisfied our time frames. We then reviewed incidents to uncover incidents or schemes that could satisfy out inclusion criteria.

Table 1 continued

Source	Criteria	How we searched the source
General media searches	ECDB criteria–see above	We searched the key word, listed below, in the main lexis-nexis Interface: *Key words searched:* Homicide and Klan Homicide and militia Homicide and sovereign citizen Homicide and aryan nations Homicide and skinheads Homicide and far rightist Homicide and far right extremists
Rick Ross	Not specific. But appears to be group/cult driven. That is, he posts any events, including crimes that have been committed by various cults/groups (such as skin heads).	We reviewed the entire website.
Anti Defamation League; Militia watch-group: NOTE: Mark Pitcavage who runs the militia watchg roup is also ADL researcher & militia watch-group materials are on the ADL website– we collapsed them together as a single source	Extremist who committed a crime	We reviewed the : Militia Watch-Group's Calendar of Conspiracy chronology (1994; 1/1/95–4/18/95; 1/1/97–6/30/00; 2001; 1/1/02–3/31/02) Militia watch-group forwards of media accounts of extremist far-right crimes 1999–2008 (we were members of the listserv) Various militia watch-group & ADL publications & chronologies from 1990s & 2000s Subsequently, for each incident coded as "0" (meaning the ADL/Militia watch-group did NOT have it) we searched the names of victims and suspects on the ADL website. This led to 18 incidents being changed from "0" to "1."

Table 1 continued

Source	Criteria	How we searched the source
Southern Poverty Law Center	Extremist who committed a crime	We reviewed: Every SPLC's Intelligence Report (or Klan-Watch), published four times a year, that covers extremist movements and reports/updates their criminal acts for the 1990–2008 time period. Various SPLC publications & chronologies from 1990s & 2000s Subsequently, for each incident coded as "0" (meaning the SPLC did NOT have it) we searched the names of victims/suspects on the SPLC website. This led to 17 incidents being changed from "0" to "1."
American Terrorism Study (ATS)	The ATS is conducted in cooperation with the FBI's Terrorist Research and Analytical Center. It includes persons indicted federally as a result of an investigation under the FBI's Counterterrorism Program. These researchers were provided lists (1980–1989; 1990–1996; 1997–2002) of persons indicted, and then traveled to federal courthouses to collect data from trial transcripts and docket information.	We reviewed the ATS and also contacted Brent Smith, PI of the ATS. His staff searched through both the ATS and other related projects to uncover suspects linked to far-right homicides. We reviewed these suspects and linked them to homicide incidents in the ECDB.
State and Local Anti-Terrorism Training (SLATT)	Described as "a chronology of terrorist and criminal extremist activities that occurred in the United States or against United States' interests. This listing is intended to cover the broad spectrum of political terrorism. It highlights violent political attacks carried out by all groups, cites the more significant criminal violations perpetrated by extremists, and monitors activist-related court decisions"	We reviewed incidents listed from 1997–2008.

Table 1 continued

Source	Criteria	How we searched the source
Cases found while coding other cases	ECDB criteria–see above	Our searchers and coders systematically searched 26 web-engines to uncover information on our incidents. These search engines were:
		1. Lexis-Nexis
		2. Proquest
		3. Yahoo
		4. Google
		5. Copernic
		6. News Library
		7. Westlaw
		8. Google Scholar (Both Articles & Legal Opinions)
		9. Amazon
		10. Google U.S. Government
		11. Federation of American Scientists
		12. Google Video
		13. Center for the Study of Intelligence
		14. Surf Wax
		15. Dogpile
		16. Mamma
		17. Librarians' Internet Index
		18. Scirus
		19. All the Web
		20. Google News
		21. Google Blog
		22. Homeland Security Digital Library
		23. Vinelink
		24. The inmate locator
		25. Individual State Department of Corrections (DOCs)
		26. Blackbookonline.info
		Additional far-right homicides that met our criteria and were not found in any other source were added to the ECDB

Table 2 Source's inclusion criteria

Source	Time frame	Includes Lone Wolves?	Includes bias-motivated crimes?	Includes non-ideological?	Includes state-level cases?
FBI "Terrorism in the United States"	1990–2005	No	No	No	No
Christopher Hewitt's chronology (2005)	1990–June 30, 2004	No	Uncertain	No	No
Global Terrorism Database (GTD)	1990–1992; 1994-2008 Note: Because the GTD recently applied the latter data collection criteria to the 1970-1997 data, the data now form a complete series from 1970 to the present Note: The GTD does not have 1993 data (LaFree and Dugan 2007)	Yes	No	No	Yes
General media searches—searched main lexis-nexis inteface	1990–2008	Yes	Yes	Yes	Yes
Rick Ross	Not indicated on the website, but appears to be 1990–2008	Yes	Yes	Yes	Yes
Anti defamation league; militia watch-group: Note: Mark Pitcavage who runs the militia watchg roup is also ADL researcher & militia watch-group materials are on the ADL website—we collapsed them together as a single source	1990–2008	Yes	Yes	Yes	Yes
Southern poverty law center	1990–2008	Yes	Yes	Yes	Yes
American Terrorism Study (ATS)	1990–2008 Note: The ATS has not completely collected all their terrorism court cases from 2004 to 2008 & they may be missing some people.	No	No	No	No
State and local anti-terrorism training (SLATT)	1997–2008	Yes	Yes	No	Yes
Cases found while coding other cases	1990–2008	Yes	Yes	Yes	Yes

The FBI, the ATS and Hewitt's (2005) chronology claimed to rely on either the FBI's terrorism definition[9] or policies.[10] These three sources should include the fewest number of incidents because the FBI's definition and policies are the most restrictive and only include (1) ideologically motivated acts (2) that were not classified as bias-motivated crimes, (3) were committed by a group, and (4) were prosecuted on the federal level. Further, the FBI and Hewitt did not include cases for the entire period. The FBI included cases from 1990 to 2005 and Hewitt only went from 1990 to June 2004.

Three sources, the GTD, the State and Local Anti-Terrorism Training (SLATT) source and Rick Ross's website–have broader criteria. These sources included lone wolves and incidents prosecuted on the state-level. However, the GTD and SLATT should have fewer incidents than Rick Ross. The GTD excludes bias-motivated crimes that are spontaneous ideologically motivated attacks against racial and religious minorities, homeless and gay individuals (Personal Communication with GTD, 10/26/10). SLATT only included cases from 1997–2008 which should limit the total number of cases it included.

Two sources—the ADL and the SPLC—should include the greatest number of cases because they included incidents for the entire 1990–2008 time period and their criteria were the most expansive. Both watch-groups included ideologically motivated and non-ideological homicides, bias-motivated homicides, as well as homicides committed by lone actors and/or that were prosecuted on the state-level. We applied these broad criteria to the systematic media searches we conducted to identify cases (see Table 1 for the search engines we searched and for the key words used). Finally, as our coders conducted open source searches to uncover information to fill in ECDB values they came across additional far-right homicides that no other source had identified (N = 16). Here too we applied the broadest criteria and included bias-motivated homicides and ideological and non-ideological homicides committed by far-rightists. We also included far-right homicides committed by lone wolves and/or that were prosecuted on the state-level.

We selected these 10 sources from the ECDB to compare because they are widely known and/or have had their data used by scholars investigating terrorism and extremist activity in the United States. We identified 68 publications that used data from these sources (published by June 2010). Unsurprisingly, 25 studies have been published using GTD data. There have been at least 13 peer-review articles using SPLC data, and 7 studies using ADL data. Finally, there have been at least 13 studies using ATS data, 4 studies using Hewitt data, 3 studies using media data, and 3 studies using FBI data.

Findings

The ECDB has identified 329 far-right homicides that occurred between 1990 and 2008. Again, the ECDB includes both ideological and non-ideological homicides. For example, if a skinhead murders an African American as part of an initiation it would be defined as an ideological homicide, but if he kills a friend because he dented his truck it would be non-ideological. Interestingly, the majority of homicides, nearly 61 percent, were non-

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[9] The FBI defines terrorism as "the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives" (FBI, 1997).

[10] While Hewitt claimed to rely on the F.B.I.s definition, his precise methodology and validation scheme are unclear. He devotes only four pages, in an appendix, to his data sources and coding procedures. Further, as our analyses demonstrate Hewitt's chronology includes lone actor, state-level and other attacks that should have been excluded under a strict application of the FBI's guidelines.

ideological (and thus should not be in the ATS, FBI, GTD, Hewitt or SLATT) and 39% (N = 128) were ideologically-motivated. Another factor is whether the suspect was affiliated with a group or committed the homicide as a lone actor. Approximately 37% of the homicides were committed by lone actors (again these homicides should not be in the three sources that follow the FBI's policies). Although many terrorism studies focus on offenses charged at the federal level, our results find that only 4% of the homicides were charged in federal court, nearly 82% in state court, and over 4% of the homicides were charged in both state and federal jurisdiction. Nine percent of the cases did not go to trial (the suspect either was killed or committed suicide) and we were unable to determine jurisdiction in 1% of the cases. Finally, over 5% of the homicides were committed in prison.

Table 3 presents the percent of the final set of ECDB far-right homicides found in each source. This table demonstrates how different source criteria impact the number and type of cases that would be included in a source. In the first data column, we present the results for all homicides, controlling for year. For example, if the time frame for a source covered all years (1990–2008), then we used 329 homicides as the denominator. However, when a source covered a shorter time period, we eliminated those homicides that occurred outside its time frame.[11]

Over 55% of the homicides were extracted from the SPLC data and over 71% of the homicides were in the ADL materials. These two watch-group organizations should include the highest percentage of incidents since they have the broadest inclusion criteria. Further, the SPLC provides chronologies of incidents in its intelligence reports and produces numerous publications documenting incidents. Similarly, the ADL discusses incidents in its publications, on its website, and through its connection to the militia watchdog website which documents incidents in its Calendar of Conspiracy and through forwarded accounts on its listserv. SLATT's website compiles information from various documents and media sources that it then presents in summary form. Over 33% of the homicide incidents that occurred between 1997 and 2008 were extracted from SLATT.

Fewer homicides were extracted from the other sources. Approximately 17% of the homicides were extracted from the Ross Institute for the Study of Destructive Cults, Controversial Groups, and Movements website, 16% were found in the media using general search strategies, and 4.6% from the FBI's Terrorism in the United States reports. Over 16% of the homicides were extracted from Hewitt's (2005) Chronology, a listing of incidents compiled from a variety of sources. Five percent of the homicides were extracted from the GTD and 2% from the ATS.

Importantly, we should *not expect* most of these sources to have all or even most of the 329 homicides because of their inclusion criteria. For example, the focus of the ATS database and the FBI is on terrorism incidents that were prosecuted in federal courts, and there are only 26 federal cases in the ECDB database. Unsurprisingly, our results demonstrate that the sources used to conduct terrorism research will provide a restricted or expanded view depending on the criteria used for inclusion. Also significant is that our coders added 16 cases to the database by identifying cases from the search file materials.

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[11] There was the possibility that a homicide that occurred outside the time frame would be included in a source. SLATT reports legal decisions as these homicides progress through the criminal justice system. For example, it reported on the numerous appeals and court decisions related to the Oklahoma City bombing. We treated these cases as being included in the source even though they fell outside the time frame. In addition, Hewitt's data collection ended 6/30/2004. Thus, we compare this source to the only the 1990–2004 homicides. Finally, the GTD does not include any incidents from 1993 thus we only compared this source for 1990–1992 and 1994–2008.

These cases were not included in any other source examined here, but were discovered as the coder read the materials about an observed case.

The second and third data columns include findings on how these sources include ideological and non-ideological offenses. Over 81% of the ideological homicides were extracted from the SPLC, approximately 67% from the ADL, and 63% from SLATT. Most of the incidents extracted from Hewitt (2005) were ideologically-motivated homicides, nearly 32% were extracted. Over 21% of the ideological homicides were extracted from general media searches and nearly 23% from the Rick Ross internet archive. The FBI had 10%, the GTD had about 10%, and the ATS had about 4% of the ideological homicides.

Most of the sources, but especially the law enforcement sources, criteria indicate that we should not expect them to include non-ideological homicides. The results support this hypothesis. The FBI did not report any non-ideological homicides, and SLATT includes 19% of all non-ideological homicides. In contrast, SLATT includes over 63% percent of the ideological homicides that occurred between 1997 and 2008.

Similarly, the inclusion criteria guiding the GTD and ATS should result in most, if not all, non-ideological homicides being excluded. Only 2.6% of the non-ideological homicides were in the GTD and only 1% in the ATS. Interestingly, the percentage of non-ideological homicides was lower for every source except the ADL when compared to the ideological homicide findings. Only 39% of the non-ideological homicides were extracted from SPLC data and reports, approximately 13% from the Rick Ross internet archive or media searches, and nearly 2% from Hewitt (2005). The ADL, however, reported on 67% of the ideological homicides and over 73% of the non-ideological homicides (such as a Skinhead killing his spouse during a non-ideological domestic violence incident). Over 5% of the non-ideological homicides were identified by our coders.

The next columns in Table 3 include coverage of homicide incidents comparing lone actor to group results for ideological events. This is important to examine because three of our sources—FBI, Hewitt (2003, 2005) and the ATS—follow the FBI's policy that usually excludes incidents where the suspect acted alone. This is a significant oversight because 37% of incidents were committed by lone actors. Although most of these homicides were not motivated by ideology (61%), a large number were. Scholars and law enforcement

Table 3 Far-right homicide coverage in sources

Source	All homicides	Ideological homicides	Non-ideological homicides	Group	Lone-Wolf	Bias	Non-Bias
FBI (1990–2005)	4.6%	10.3%	0.0%	6.7%	14.6%	6.3%	11.0%
Hewitt Chronology (1990–6/30/2004)	16.3	31.6	1.6	33.3	26.8	43.8	30.0%
GTD (1990–2008)	5.4	10.1	2.6	10.8	6.8	10.5	10.1
SPLC (1990–2008)	55.6	81.3	39.3	86.3	72.3	68.4	83.3
ADL (1990–2008)	71.1	67.2	73.6	62.5	74.5	78.9	65.7
ATS (1990–2008)	2.1	3.9	1.0	3.8	4.3	5.3	3.7
Rick Ross Website (1990–2008)	17.0	22.7	13.4	27.5	12.8	21.1	23.1
Media (1990–2008)	16.4	21.1	13.4	25.0	14.9	10.5	23.1
SLATT (1997–2008)	33.3	63.0	19.1	69.2	55.9	27.3	69.4
Coders	4.9	3.9	5.5	1.3	8.5	0.0	4.6

personnel have stressed the need to better understand the criminal activities of lone wolves (Chermak et al. 2010; Turchie and Puckett 2007). It is not surprising that most sources included a lower percentage of homicides involving lone wolves compared to those homicides where the suspect was connected to a group. For example, 15% of the lone wolf homicides were extracted from media searches compared to 25% of the group homicides. Similarly, 13% of the lone wolf homicides but 28% of the group homicides were extracted from the Rick Ross internet archive. Although the SPLC included information about a higher percentage of homicides involving groups (compared to lone wolf homicides), the ADL included information about a somewhat lower percentage. Seventy-five percent of the lone wolf homicides were extracted from the ADL, but 63% of the group homicides were located within their materials. Interestingly, the FBI provided a higher number of lone wolf homicides even though such incidents are specifically excluded by their inclusion criteria.

The final two columns include whether an ideological incident was a bias-motivated crime or not. These two columns were included because some of the sources (FBI, ATS and GTD) criteria exclude (or like the GTD generally exclude) bias-motivated crimes, although the sources actually included some of these incidents. For example, the FBI included 6.3%, the GTD 10.5% and the ATS 5.3% of the bias-motivated crimes. SLATT included 70%, Hewitt 30%, the GTD 10.1%, the FBI 11%, Rick Ross 23.1%, media searches 23.1%, the ATS 3.7%, and the ADL 65.7% of the non bias-motivated homicides. Surprisingly, the SPLC (68.4/83.3) includes a somewhat higher percent of non bias-motivated crimes.

Table 4 presents the percent distribution of the number of sources per homicide. It also examines the number of sources for ideological and non-ideological and lone wolf and group homicides. On average, these homicides were mentioned in one or two sources.[12] Forty-seven percent of the homicides were mentioned in only one source and 24% were mentioned in two sources, highlighting the importance of extracting information from as many sources as possible. Few homicides were mentioned in eight or nine of the sources. A comparison of ideological to non-ideological results indicates that ideological homicides were more likely to be mentioned in multiple sources. Over 31% of the ideological homicides, but 54% of the non-ideological homicides were cited in only one source. Moreover, over 78% of the non-ideological homicides were in only one or two sources. This was expected because four sources specifically exclude non-ideological homicides. In contrast, 20% of the ideological homicides were in three sources, 9% were in four sources, 7% in five sources, and 7% in eight sources. The number of sources that included lone wolf and group homicides are similar. Over 38% of the lone wolf homicides were in only one source and 19% were in two sources, but several lone wolf incidents were presented in eight sources. Almost 70% of the group homicides were in one or two sources.

Catchment and Re-Catchment Analysis[13]

Applying the logic of "catchment-re-catchment" sampling, Table 5 takes into account definitional and scope differences across our sources. This table, in other words, examines

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[12] It is likely that a specific source relied on several of the other sources examined here to identify incidents. That is, these sources rely on other open sources, and thus the number of sources might be indicative of a single source that captured an incident, that was then used by the other sources.

[13] The catchment/recatchment methodology is similar to the capture and recapture methodology. Importantly though, we use the catchment/recatchment methodology here more as an analogy than a specific method largely because the harvesting of open source data is not sampling in the traditional sense and terrorism is not very prevalent. For these reasons it is not necessary to do formal estimation as is done in more traditional catchment/recatchment applications.

Table 4 Number of sources by type of homicide

Number of Sources	All homicides (mean = 2.09)	Ideological homicides (mean = 2.83)	Non-ideological homicides (mean = 1.61)	Group (mean = 2.22)	Lone-Wolf (mean = 1.98)
1	45.3%	31.3%	54.2%	27.5%	38.3%
2	23.7	22.7	24.4	25.0	19.1
3	14.9	19.5	11.9	20.0	19.1
4	4.9	9.4	2.0	8.8	10.6
5	3.6	7.0	1.5	8.8	4.3
6	1.2	2.3	.5	2.5	0.0
7	0.0	0.0	0.0	0.0	0.0
8	3.0	7.0	.5	6.3	8.5
9	.3	.8	0.0	1.3	0.0
10	0.0	0.0	0.0	0.0	0.0

Table 5 How sources capture similar homicides (events not prosecuted as hate crimes; N = 59)

	GTD (N = 5)	Media (N = 10)	Hewitt (N = 11)	RickRoss (N = 17)	SLATT (N = 42)	SPLC (N = 46)	ADL (N = 50)
GTD	5 new	4/5	4/5	5/5	5/5	5/5	5/5
Media		6 new	6/10	8/10	10/10	10/10	10/10
Hewitt			5 new	6/11	11/11	11/11	11/11
Rick Ross				7 new	15/17	17/17	15/17
SLATT					21 new	34/42	39/42
SPLC						10 new	40/46
ADL							3 new

Two incidents were not included in any of the sources, but were identified by our coders during the search process

the overlap among data sources by only focusing on incidents that meet the inclusion criteria (are eligible) for all the listed sources.[14] Thus, this analysis only includes the 59 ideologically-motivated incidents that were not prosecuted as bias-motivated crimes. Limiting analysis in this way should result in all these sources encompassing the same universe of events. Thus, the inclusion of additional sources should result in a steadily decreasing number of events *not identified* by previous sources and a consistently increasing number of events that *were identified* in previous sources. Such a finding would indicate that we are approaching capturing the universe of eligible events. Conversely, if these data sources are not tapping the same underlying universe of terrorism incidents, we should see little change in the number of new events identified with the addition of new sources and a low or stable number of events captured by at least one of the prior data sources.

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[14] We have excluded the FBI and ATS sources from these analyses because they focus only on federal cases.

We started in column one with the source (i.e., the GTD) that included the fewest incidents and in each subsequent column examined how many of these incidents were captured by an additional source and how many new incidents this additional source added.

The media had 4/5 of the events captured from the GTD, but also added 6 new incidents. Hewitt's data included 4/5 GTD incidents and 6/10 media incidents, and added 5 new incidents. Rick Ross included all of the GTD events, 8/10 media incidents, and 6/11 Hewitt incidents. It also added 7 new incidents. SLATT has significantly more events, including all of the GTD, media, and Hewitt incidents and most of the Rick Ross's incidents. It also added 21 new incidents. The SPLC had all GTD, media, Hewitt, and Rick Ross incidents, and 34/42 SLATT incidents. This source added 10 new incidents. Similarly, the ADL had all of the GTD, media, and Hewitt incidents, and most of the Rick Ross, SLATT and SPLC incidents. The ADL also included three incidents that were not in any other of the sources.

This analysis demonstrates that consistently adding sources to a data collection effort substantially increases the number of events captured. There appears to be a convergence as ultimately fewer new events were found as the final sources are added. This is especially the case when specialized sources like SPLC and ADL are used. Indeed, our coders identified only two incidents (less than 3% of all events) that did not appear in any other source. This suggests that these data sources are coming closer to capturing the universe of events.

Potential Biases Caused by Open Source Data Collection and Source Selection

This section examines potential biases that might result from relying on open source data collection generally and specific terrorism data sources. Like all data collection procedures, open source searching has strengths and weaknesses. This section explores two types of possible bias, (1) publicity effects, and (2) source effects. The publicity effects analysis focuses on whether sources are susceptible to the inclusion of outlier events, the most extreme, celebrated cases. The source effects analysis investigates if the events captured in a particular source are different from the overall universe and thus could lead to different conclusions. Although there is some variation by type of event, researchers have relied mostly on single sources to study domestic terrorism (Hewitt 2003, 2005; Smith 1994). This raises the question whether the choice to use one specific data source has a substantial effect on the type of incidents identified and the results obtained in quantitative analysis. This possibility is investigated by comparing several attributes of victims, suspects, and incidents in each specific source to all sources.

Publicity Effects

Relying on open sources generally, and a single source specifically, may uncover data susceptible to publicity effects. There is an unequal distribution of information about such events and thus the highest profile events are most likely to be included within a database. Chermak and Gruenewald (2006: 443) study of media coverage of domestic terrorist incidents concluded that only 55% of a sample of 412 incidents received any coverage in the *New York Times*, 15 incidents accounted for 80% of the total number of articles and 85% of the words written about all incidents. Such high profile incidents are valuable to researchers because they produce multiple data points of interest and competing sources to better determine the veracity of information about the incident. For example, the number of

source documents, including media reports, government documents, and books about the Oklahoma City bombing provide assurance that the researcher has multiple perspectives to consider when determining facts. One problem that relates to the concerns of this article is how such outlier cases might impact general and scholarly understanding about a particular problem. We investigate this issue with a couple of simple analyses.

There were ten incidents that were included in at least eight of the sources. Most of these cases have dominated discussions about the nature of the far-right threat in the United States over the last 20 years. These cases include the Oklahoma City bombing that resulted in the deaths of 168 victims. Several of the other cases also included multiple victims, including two bombings orchestrated by Eric Rudolph, the shooting sprees of Ben Smith and Buford Furrow, and the Gunn and Kopp abortion doctor killings. In addition, the murder of a US Marshall at Ruby Ridge and two homicides of gay men were included in most of the sources examined here.

The potential bias produced by these high profile events is problematic for sources that only include few incidents. These 10 incidents represent only 6% of the cases identified in the SPLC data and 5% in the ADL data. They represent 12% of the SLATT cases, 20% of the media, 18% of Rick Ross, 26% of Hewitt's, 50% of the GTD and 73% of the FBI data.

We also examined whether high profile cases might increase the general interest in far-right criminal activity. Research has described this phenomenon as an "echo effect:" A single high profile cases causes increased awareness about an issue and organizational responses that include processing similarly situated cases differently because of the heightened publicity (Surette 1999; see also Damphousse and Shields 2007). We explore the potential impact of a high profile case by examining how the number of sources might change. Using the Oklahoma City bombing (which occurred on April 19, 1995) time frame as the focus, we grouped the data into roughly equal periods, and then examined the results comparing 1990–1994, 1995–1999, 2000–2004, and 2005–2008. Previous research indicates that public and media attention to domestic extremism grew dramatically following the bombing and interest continued to the end of the decade before it waned (Chermak 2002).

The results indicate that interest in domestic extremism following the Oklahoma City bombing may have impacted source coverage of far-right violence incidents. On average, there were 1.9 sources for homicides that occurred between 1990 and 1994, 1.94 sources for homicides that occurred between 2000 and 2004, and 1.7 sources for homicides that occurred between 2005 and 2008. The number of sources for homicides that occurred during the 1995-1999 time period increased to 2.78 on average. We did the same calculations for only the ideological homicides and the results are similar. The number of sources covering far-right homicides increased following the Oklahoma City bombing. Specifically, 2.3 sources in 1990–1994, 2.56 sources in 2000–2004, and 2.28 sources in 2005–2008 covered ideological homicides. During the 1995–1999 time period however, 3.54 sources covered ideological homicides.

Source Effects

It is clear from the foregoing discussion that some open source terrorism data collection efforts include more right-wing homicide events than others, even after adjustments are made for different inclusion criteria. Importantly though, this does not necessarily mean that the analyses of data from these different sources would lead to different conclusions. The GTD may include fewer cases of right wing violence than SPLC, but the smaller group of cases in GTD may be just as representative of the population of right-wing homicides as

the SPLC universe. In this case, analyzing the data from any of the two sources may produce similar results supporting similar conclusions.

To test whether different data sources capture different types of right-wing homicide events, we examined the distributions of case characteristics after combining the most commonly used data sources into general categories (databases (GTD/Hewitt); internet (media/Rick Ross), law enforcement (SLATT) and watch-group (SPLC/ADL). If the different data sources are capturing the same types of events, then the uni-variate distributions of case attributes should not differ across sources. This analysis refines our understanding of how the inclusion or exclusion of cases impacts selectivity. Distinctions between classes of data sources should be tied to differences in the social organization of data collection. A watch-group, for example, should probably list more cases where the victim has the ascriptive characteristics of the groups for which the watchdogs are advocating and it should be more assiduous in recording information on the presence or absence of that ascriptive characteristic. For example, law enforcement sources may be less concerned about religious affiliation of the victim compared to watch-group sources. Law enforcement sources, however, may have more events with guns because whether someone is armed is important to them.

Importantly, several of the data sources do not have values for these variables. Any researcher wanting to examine these variables would have to (1) use these data sets as a start to generate a listing of cases in which they are interested; (2) once this list is generated the scholar would have to do additional work to uncover values for the missing variables of interest. One way to do this would be to systematically search each of these events through all available open sources. The ECDB search protocol is in fact just a refined, comprehensive search protocol. Most of the sources examined here only had the chance to have the case, and did not include much information about characteristics of the victim, defendant, or incident. Since we are using only one source of data to determine the value of a characteristic of an event, differences in the recording the characteristics of an event will not contribute to differences in the characteristics across data sources. Any differences in characteristics of events observed across data sources will be due to selectivity in the inclusion of events. Characteristics of terrorist events will differ across data sources because one source includes a different set of events than the other. We would likely find more differences across sources if we allowed recording of the value of the characteristics to vary as well. Here we are only testing the effects of selectivity and not differences in recording. The conservatism of this test in this regard combined with the small number of cases used for this analysis (N = 59) would argue for using alpha level of .1 in the test for selectivity.

We compared three characteristics of victim (gender, age, and if the victim was African American), two characteristics of suspects (age and if they had a prior criminal record before committing a homicide),[15] and two characteristics of the incident (number of suspects and whether a gun was used in the incident) by each of the combined category of sources (GTD/Hewitt v. Media/Rick Ross; GTD/Hewitt v. SLATT; GTD/Hewitt v. Watch-group Sources; Media/Rick Ross v. SLATT, etc.). Table 6 presents the variables that were statistically different.

There are several results worth noting. First, there were only a handful of statistically different results. Indeed, there were no differences comparing sources for the number of suspects, victim race, victim age, and victim gender variables. Second, most of the differences uncovered were for the sources with the fewest number of cases. Seven of the nine

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[15] All of the suspects for these incidents were male and white.

statistical different tests occurred when comparing the databases to the other sources. Third, the majority of differences were for just two variables. Suspect priors and whether a gun was used were the variables that were most likely to be different when comparing sources.

Discussion

Scholars have become increasingly interested in the study of terrorism. This interest makes sense considering the social and political impact of the September 11th attacks. Scholars have begun to conduct research that is designed to produce findings that could be useful to policy makers and practitioners engaged in decision-making processes. One obstacle to a rigorous study of terrorism has been the absence of readily available data for analysis. Despite definitional, conceptual, and access issues, the scholarly community has responded by building on existing databases or creating new ones, providing the opportunity for increasingly sophisticated statistical analysis. These databases and other sources of terrorism or extremism data rely on open source materials. Scholars have been successful analyzing such sources and publishing peer review materials. Other stakeholders, such as law enforcement intelligence analysts, rely on open source materials as well. One possible limitation of using such sources, however, is a lack of understanding of their strengths and weaknesses. This paper attempted to take a step back to assess selectivity issues related to how well 10 open sources do in capturing homicide events committed by far-right extremists in the U.S. Several of these sources are the leading databases on terrorism and others like the SPLC and ADL are often used by researchers. These latter sources are frequently cited in news stories and are used to inform policy decisions (Chermak 2002).

We identified significant variation in the percentage of homicides that were included in the different sources. We found that in the time period following the most celebrated and deadly far-right homicides that occurred between 1990 and 2008, the number of sources covering such homicides increased and a greater percentage of open sources included other far-right incidents compared to other time periods. The variation in the number of incidents in each source is partially a function of the differences in their inclusion criteria. Sources differ as to whether they include far-right homicides that are non-ideological, bias-motivated crimes, committed by lone wolves, prosecuted on the state-level and the time frame on which they focused. It is thus crucial that scholars who use a specific database understand its inclusion criteria and appreciate what incident types are included or excluded and why. This will insure that researchers examine a universe of events that accurately represent the research questions they are investigating.

Interestingly, we discovered that sources were sometimes inconsistent with their own inclusion criteria. These inconsistencies operated in two ways: (1) sources included

Table 6 Differences in attributes using combined sources (*p*-value)

	GTD/Hewitt	Media/rick ross	SLATT	SPLC/ADL
GTD/Hewitt		Gun (.002); Priors (.078)	Gun (.039); Priors (.022); Suspect Age (.056)	Gun (.002); Priors (.006)
Media/Rick Ross			Gun (.091); Suspect Age (.029)	
SLATT				
SPLC/ADL				

incidents that did *not* meet their criteria and therefore should have been excluded, and (2) sources excluded incidents that *met* their criteria and thus should have included them.

In terms of sources including incidents they should not have, most sources were less likely to include non-ideological crimes, those committed by lone wolves, or bias-motivated events. Although part of this variation can be attributed to the inclusion criteria of the source, there were homicides present in a source that was inconsistent with these criteria. For example, the ATS, FBI, GTD, Hewitt, and SLATT inclusion criteria specifically exclude non-ideological routine homicides from their universes. While the FBI operated consistently with its criteria and did *no*t report any non-ideological homicides, and the ATS, Hewitt and the GTD were mostly consistent (only 1, 1.6, 2.5 of the non-ideological homicides, e.g. robbery and personal grievance, were in the ATS, Hewitt and the GTD, respectively), SLATT included 19% of all non-ideological homicides. Similarly, the FBI reported over 14% and Hewitt over 26% of lone wolf homicides even though their criteria exclude such attacks and they are only supposed to include incidents committed by groups. We did an analysis that excluded all cases that were either prosecuted as a hate crime or were motivated by race and found that several sources included such events even though their own criteria should have excluded them.

Sources also excluded incidents they should have included. In general, the watch-group sources included most of the homicides, the law enforcement source included a majority of the ideological homicides, but media sources and the research databases included a smaller percentage of these homicides. Our results indicate that every source "missed" incidents that according to its own criteria should have been included.

This provides evidence that by combining various sources one gets closer to including most of the universe of available far-right homicide cases. Indeed, there appears to be substantial value in constructing a database by combining the incidents from multiple sources. Nearly half of the homicide incidents appeared in only one source. Non-ideological and lone wolf homicides were even more likely to be included in only one source. Our catchment and re-catchment analysis confirmed this as the addition of each new source increased the number of events captured. There was a convergence as fewer new events were found as new sources were continuously being added. Out of the cases used in the previous analysis (N = 59) our coders only uncovered two additional incidents (less than 3% of all events) that did not appear in any other source. This suggests that these data sources are close to representing the true universe of known far-right homicide events.

Despite the variations in coverage of incidents and an over exclusion of celebrated cases, the basic attributes of victims, suspects, and incidents tested here were generally presented similarly. But it is important to note that the sources with the fewest cases produced the most differences, and that differences occur for some types of variables (guns, suspect priors). This is an area of research that needs more development because we only examined a handful of characteristics, and we were not able to examine whether differences in recording of the characteristics of a specific attribute varied by type of source.

In sum, this study provides the first preliminary empirical support for the notion that scholars using open-source data are using data that is representative of the larger universe they are interested in. In fact, it appears that selectivity bias may be less of a problem than initially feared. But, there is still much to learn about the strengths and weaknesses of open sources. It is important that researchers understand possible biases of their data because it is then possible to make necessary adjustments. It is imperative with large data collection efforts, e.g. the ECDB, ATS, or GTD, that the principal investigators understand, discuss, and attempt to correct systematic biases to their data and subsequently provide this

information to others. Future research could also extend this study by examining additional crime types and terrorism generally, as well as looking at additional ideologies (e.g., eco-terrorism and Jihadi events) at locations outside the United States.

One way to improve data transparency for future users is to create an error profile. An error profile identifies possible sources within the data collection methodology that may bias the results through non-sampling errors. Such errors can negatively affect the data even if a census or random sample is used. This becomes increasingly important as datasets are made public to researchers and policymakers who were not involved in the initial research design and collection of data. Even though in some research articles the authors include a small section that discusses the limitations of the data and their findings, it is important that researchers analyzing secondary data understand and have access to detailed methodological information which principal investigators and research assistants accumulate during the data collection and analysis.

In the late 1970s, a commission on non-sampling errors created an error profile to identify and correct possible problems associated with the survey data used by the Census Bureau. The commission recommended that future government data collection efforts do the same. Although most large data collection efforts in the field of terrorism are not based on survey data, an error profile could be created through the documentation of possible non-sampling errors that could be used to address possible bias created through non-sampling errors. It can also be used by researchers analyzing secondary data in informing discussions related to the limits of their study and possible policy implications.

As the purpose of the profile is to make researchers aware of the known errors in the data set so they might change their analysis or their inferences from the analysis accordingly, the value of an error profile increases for dynamic data collection efforts such as open source terrorism databases, which are continually updated and refined. Few data collections in social science have been the subject of sufficient methodological research as to have an error profile, so researchers generally ignore potential errors or speculate about them without empirical evidence. To be sure, it is easier to identify and empirically investigate sources of error in static data sets, but few single use data sets attract enough attention to build much of an error profile. Due to this, data collection efforts that are not a single cross-section have changes in definitions and procedures that affect the accuracy and comparability of the resulting data (i.e. the UCR & the NCVS). Even when the procedures and definitions of the collection stay the same, society can change in ways that introduce error. If we find that data sources, or search engines or search terms affect the quality of the data, then changes in these aspects of the data collection should be documented. Then, if a database compiled with open source data adds a different data source or uses a different source engine or different search terms, these changes should be noted in the documentation and both database and documentation should be dated. Making researchers aware of error and identifying procedural differences in open source search that can affect the accuracy of the data is a significant step forward.

For the ECDB specifically, an error profile might address the following two situations involving possible non-sampling errors: identification of incidents and coder decisions. As one of the ECDB's objectives is to conduct a census of all homicides committed by individuals who subscribe to a far-right ideology, any missing homicides introduce error into the data and the subsequent analyses. True far-right homicide incidents may be missed for many different reasons, some of which include; a murder miscategorized by police, prosecutors, or medical examiners as a suicide or natural death, the far-right suspects were never identified as suspects in a homicide, suspects that were identified but were not tied to the far-right, information that did tie the suspect to the far-right was never reported to the

media, or the media never incorporated an individual's far-right ideology into their articles, especially when the homicide was not ideologically motivated.

In addition, when searching open-sources for cases, other forms of non-sampling error may occur. For example, SPLC or ADL publications may link a suspect to the far-right based on unsubstantiated data that, because of its lack of transparency, might cause over coverage of the population of interest, extending the sample outside of its intended frame. Ideally, this type of error would be corrected in the coding process when no additional information relating a suspect to the far-right can be found in follow up open source searching. In relation to media searches that are used to identify cases, the key terms and sources used can also introduce non-sampling error. The ECDB used Lexis-Nexis, which, although it is an extensive database of media accounts, does not represent all media outlets in the United States. In addition, the key terms used to identify homicide incidents may not identify all of those connected to the far-right. The use of skinhead and homicide or skinhead and murder will not identify incidents that may have been committed by a constitutionalist or an anti-government survivalist. If the missing cases are random, that is to say if there are no systematic reasons why one type of incident may be included while another is excluded, than the effect that it has on the data and the analyses using this data would be minimal. However, since the non-sampling errors make it impossible to compare the true universe of homicide incidents to the actual incidents collected, it is also impossible to estimate the affects that non-sampling errors have on the data collection process and that, in turn, prohibits a researcher from using statistical techniques to adjust for the bias.

All of the aforementioned non-sampling errors can either cause an over count or an undercount of far-right homicide incidents, but decisions made by coders can also alter the true universe of interest. Once incidents are identified, trained coders examine open-source materials that are used to identify whether a suspect is a far-rightist or not. When weighing the open-source evidence and attempting to decide whether a homicide incident was committed by a far-rightist, the decision one coder makes may not be the same as another coder who is weighing the exact same evidence. This discrepancy may cause some coders to include incidents that others would exclude and vice versa. Coders can also cause non-sampling errors, not just in the identification of an incident, but in the collection and coding of data related to each incident (for a discussion of intercoder reliability see Gruenewald and Pridemore, this issue). It is the purpose of an error profile to identify all of the possible sources of non-sampling error and to explain them in a way so that future researchers will have the ability to understand the strengths and weaknesses of the data with which they are working.

The creation of such error profiles is a positive step in improving the quality of data collected to study terrorism. Such profiles should be informed by a growing body of research from multiple sources related to the identification, collection, and processing of such data (see Chen et al. 2008). Finally, as the empirical and theoretical contributions to the understanding of terrorism continue to grow, there appears to be an equally important need for scholars to openly engage in dialogue about the methods and data used for the study of terrorism.

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